

NOTE

Subject: EPA Comments on Basin Electric Power Coop, Leland Olds Power Station ,
Stanton, ND Round 7 Draft Assessment Report

To: File

From: Jana Englander, OSWER, US EPA

Date: January 6, 2011

1. On p.5, under 1.1 Purpose, in paragraph 1, replace "location is North Carolina" with "location is North Dakota"
2. The EPA requirement to address the question: “**Is any part of the impoundment built over wet ash, slag, or other unsuitable materials (like TVA)?**” does not appear to be addressed.

State: None

Company: See attached letter dated March 2, 2011

**BASIN ELECTRIC
POWER COOPERATIVE**

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March 2, 2011

Mr. Stephen Hoffman
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comment Request on Basin Electric Power Coop. – Leland Olds Draft Report

Dear Mr. Hoffman:

This letter is in response to the comment request received on February 4, 2011 for the draft of the Specific Site Assessment for Coal Combustion Waste Impoundments at the Basin Electric Power Cooperative (BEPC) Leland Olds Generating Station. This report presents the results of a specific site assessment of coal combustion waste (CCW) impoundments at the Leland Olds Station. The assessment was performed on September 21, 2010 by GEI Consultants, Inc.

Basin Electric's comments on the report are as follows:

Overall

Throughout the report, the plant is referred to as the "Leland Olds Generating Station". This is incorrect; the name of the plant is simply the "Leland Olds Station" (LOS).

Ash Pond 1 is no longer a "Pond", and it is no longer referred to as Pond. It is referred to as "Former Ash Pond 1", and should be referred to as such throughout the report. Former Ash Pond 1 has been closed, filled with bottom ash solids, and clay capped. This area should not be categorized as a pond in this document as the area cannot function as a pond. As of this writing, Former Ash Pond 1 is 90% reclaimed.

The CCW impoundments that are permitted for waste disposal are Former Ash Pond 1, Ash Pond 2, and Former Ash Ponds 4 and 5. Ash Pond 4 is reclaimed as is the majority of Ash Pond 5. A portion of Ash Pond 5 in the southeast corner of the permit area has been reserved for future disposal. They are classified as special use disposal areas. Changes to the drawings are planned to be submitted to the North Dakota Department of Health (NDDH) later this year when the QA/QC reports are submitted on the final closure.

Pond 3 is not proposed for ash disposal and should not be referred to as an ash pond. It holds decant water only, until it is recirculated back to the plant Circulating Water System. BEPC refers to this pond as just "Pond 3", and should be referred to as such throughout the report.

Correspondence from BEPC to GEI Consultants was not included as an attachment to this report, and BEPC believes it should be included.

March 2, 2011

Page 2

Page 1, Section 1.1, Paragraph 1

The Leland Olds Station is near Stanton, North Dakota, not North Carolina.

Page 2, Section 1.7, Paragraph 1

The first solid waste permit was obtained in 1982 from the North Dakota Department of Health. Periodic inspections have taken place by the North Dakota Department of Health since the issuance of Special Use Permit SU-038 (SP-038).

Page 3, Section 2.1, Paragraph 1

The second to last sentence, "The CCW impoundments....are permitted to store bottom ash" should read "The CCW impoundments....are permitted to *dispose of* bottom ash."

Page 3, Section 2.1, Paragraph 2

The timeline shown in this paragraph is incorrect. See the attached excerpt from the NDDH Special Use Disposal Permit Renew Application SP-038, dated September 2004.

Page 4, Section 2.2, Table 2.1

The crest elevations shown for Ash Pond 2 and Pond 3 are incorrect. The crest elevation on the dikes is approximately 1,690 msl.

Page 5, Section 2.4, Paragraph 1

The decommissioned CMPs and the methods of decommissioning are known. The diameters of these pipes are 36" for the one located near the midpoint of the east perimeter dike, and 48" for the one near the northwest corner of the pond. The pipes were decommissioned by removing as much of the CMPs as possible, and then backfilling them with clay material.

Page 6, Section 2.7, Paragraph 2

Referring to the last sentence: Bottom ash from the plant is sold for beneficial use when *there is a market for it to be sold*, not if it is "*of a high enough quality*".

Page 6, Section 2.7, Paragraph 3

Within the last 6 months, a daily site inspection has been performed on Ash Pond 2 and Pond 3. Inspection reports are kept on record, and include checks for seepage, sinkholes/sloughing, normal water level, and the water elevation on Pond 3.

Page 8, Section 4.1, Paragraph 1

Further discussion and the definitions of the hazard classifications for impoundments based on the Federal Guidelines for Dam Safety should be inserted here.

Page 8, Section 4.2, Paragraph 2

Ash Pond 1 is no longer a Pond. See the Overall Comments section of this letter. The CCW material no longer has the potential to become moist or partially saturated due to precipitation from storm events.

Page 8, Section 4.2, Paragraph 4

The hazard classification for Former Ash Pond 1 references the Federal Guidelines for Dam Safety and the North Dakota Dam Design Handbook. The hazard classification of the structure is stated as "Significant". The North Dakota Dam Design Handbook does not classify dams as "Low, Significant, and High". It classifies them as "Low, Medium, and High". For each

classification a dam is given a hazard category based on dam height: categories I, II, III, IV, and V. Therefore, the reference to the North Dakota Dam Design Handbook should be removed.

As discussed previously, Former Ash Pond 1 has been closed, filled with bottom ash solids, and clay capped. It is no longer a dam, no longer holds fluids, and is classified as a permitted landfill. Therefore, it is the belief of BEPC that this landfill should not be given a dam safety hazard classification.

Page 9, Section 4.3, Paragraph 2

"There are no structures present between the downstream portion of Ash Pond 2 and the Missouri River." This is incorrect; Pond 3 is present between the downstream portion of Ash Pond 2 and the Missouri River.

Page 9, Section 4.3, Paragraph 4

The hazard classification for Ash Pond 2 references the Federal Guidelines for Dam Safety and the North Dakota Dam Design Handbook. The hazard classification the structure is classified as "Significant". The North Dakota Dam Design Handbook does not classify dams as "Low, Significant, and High". It classifies them as "Low, Medium, and High". For each classification a dam is given a hazard category based on dam height: categories I, II, III, IV, and V. Therefore, the reference to the North Dakota Dam Design Handbook should be removed.

BEPC believes that Ash Pond 2 should be classified as a "Low" hazard structure. This reasoning is due to the only failure point between Ash Pond 2 and Pond 3 being the dividing dike. In the event of a failure of this dike, the water from Ash Pond 2 would merge with the water from Pond 3. It would be completely contained, and according to the definition of a "Low" hazard structure, would result in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

Page 9, Section 4.4, Paragraph 4

The hazard classification for Pond 3 references the Federal Guidelines for Dam Safety and the North Dakota Dam Design Handbook. The hazard classification the structure is classified as "Significant". The North Dakota Dam Design Handbook does not classify dams as "Low, Significant, and High". It classifies them as "Low, Medium, and High". For each classification a dam is given a hazard category based on dam height: categories I, II, III, IV, and V. Therefore, the reference to the North Dakota Dam Design Handbook should be removed.

Page 11, Section 5.2, Paragraph 1

The recommended "Medium" hazard classification for the CCW impoundments using the North Dakota State Engineer Dam Design Handbook is believed by BEPC to be incorrect. The classification based on the North Dakota Dam Design Handbook should be "Low" for Ash Pond 2 and Pond 3, as no loss of life would be expected, and no homes, highways, railroads or public utilities would be damaged. Former Ash Pond 1 would not require classification, as it is a landfill.

"Low", as defined in the Handbook, is as follows: Dams located in rural or agricultural areas where there is little possibility of future development. Failure of low hazard dams may result in damage to agricultural land, township and county roads, and farm buildings other than residences. No loss of life is expected if the dam fails.

March 2, 2011

Page 4

"Medium", as defined in the Handbook, is as follows: dams located in predominantly rural or agricultural areas where failure may damage isolated homes, main highways, railroads, or cause interruption of minor public utilities. The potential for the loss of a few lives may be expected if the dam fails.

Based on Dam Height, the impoundments would be classified as a Low hazard Class II. Subsequently, according to the North Dakota Dam Design Handbook, the Suggested Precipitation Criteria for Spillway Design, Emergency Spillway Criteria for Freeboard is the precipitation on a 50-year 24-hour storm event. The 50-year 24-hour storm event from the USDA - SCS North Dakota Hydrology Manual is 4.17 inches.

Page 12, Section 5.2.2, Paragraph 2

The water level elevation listed as 1,690 is incorrect. The top of the dikes are approximately 1,690, and the water level operating elevation is approximately 1,680.

Page 14, Section 6.0, Paragraph 2

Seismic analysis information from a recent project on the plant site is available and was provided to GEI consultants in the information submittal letter dated October 1, 2010.

Page 15, Section 7.0

The water elevation of Pond 3 is available in the Recirculation Pump House Structure. The elevation is measured using the structural floor of the Pump House as a datum line. The water level elevation below the floor is measured using an ultrasonic level indicator. The water elevation of Pond 3 is controlled by operation of the Ash Pond Recirculating Pumps that pump the water back to the discharge of the cooling water side of the steam condenser inside the plant.

The water elevation of Ash Pond 2 is controlled by means of a static skimmer that allows decant water to flow into Pond 3.

The water levels are currently recorded on a daily basis on daily pond inspection reports. The elevation reading is reliable. The water elevations have been maintained using this method for many years and there is no history of pond overflow.

Page 19, Section 10.1, Paragraph 1

Inspections by the North Dakota Department of Health (NDDH) began in 1982, not 2010. See the comment above referring to Page 2, Section 1.7, Paragraph 1. Also, the second sentence should be removed. The correct statement about inspections by LOS plant personnel can be found on page 2 of the report, Section 1.7, in the last sentence.

Page 19, Section 10.3, Paragraph 1

The correct statement about inspections by LOS plant personnel can be found in the report on page 2, Section 1.7, in the last sentence. The last sentence should read: "Plant personnel are available at the power plant 24 hours a day, 7 days a week, and 365 days a year for emergencies that may arise." The ponds are visually inspected twice daily with water elevation and pond condition recorded on the daily inspection report.

Page 20, Section 11.1.4, Paragraph 1

See the previous comments regarding Page 15, Section 7.0.

March 2, 2011

Page 5

Page 21, Section 12.1, Item 3

The last sentence in the paragraph refers to "the appropriate FERC requirements". The LOS CCW facilities described in this report are not associated with a hydroelectric project and therefore not under FERC jurisdiction.

Page 21, Section 12.2, Paragraph 1

See the previous comments regarding Page 15, Section 7.0.

Page 22, Section 12.3

LOS is currently doing documented visual inspections of each pond. LOS has also developed a site-specific detailed checklist that is used bi-weekly from approximately April to freeze-up. After freeze-up, monthly inspections are completed.

LOS is currently considering a dam safety inspection program for more detailed third party inspections.

If you have any questions or comments, please let me know. I can be reached via email at mfluharty@bepc.com or by phone at 701-557-5688.

Sincerely,



Mike Fluharty
V.P. Plant Operations

cc: Mark Thompson
Mike Paul
Lyle Witham
Jim Berg

Attachment

Excerpt from Leland Olds Station, Stanton North Dakota, Special Use Disposal Site SP 038, Renewal Application September 2004

**Leland Olds Station
Stanton North Dakota
Special Use Disposal Site SP 038
Renewal Application
September 2004**

1. Disposal/Permit Area Site Description

The Leland Olds Station is located in Mercer County approximately two miles south and three miles east of Stanton, North Dakota. The power plant is situated right along the west side of the Missouri River. All make-up water is obtained from the Missouri river system in a once-through cooling system.

The Leland Olds Station is comprised of two coal fired steam electric generating units. Unit 1 is a nominally rated 216-megawatt gross unit and uses a pulverized coal burning dry-bottom boiler. Unit 2 is a nominally rated 440-megawatt unit and uses a cyclone-fired wet bottom boiler. Unit 1 was put into service in 1965 and Unit 2 was placed into service in 1975. Both units burn lignite from the Freedom Mine located near Beulah, North Dakota that is operated by Coteau Properties. Subbituminous coal from the Powder River Basin in Wyoming/Montana is also burned at LOS, primarily in Unit 2. Depending on the sulfur and sodium content of the North Dakota lignite, the percentage of subbituminous coal burned in Unit 2 may range as high as 30-40% as limited burns.

The disposal setting at the Leland Olds Station plant site has undergone significant changes in the last decade of operation. Up until the early 1990's, both fly ash and bottom ash were disposed of east of the plant. Both of the waste streams were sluiced via four gravity pipelines to a series of holding ponds. Changes were made in the system to remove the fly ash from the waste stream by abandoning the use of water powered hydraulic inductors in favor of electric motor driven mechanical exhausters. The fly ash is then collected in filter receivers and transferred to a storage silo where the waste is loaded into haul trucks and disposed of in the prelaw mine spoils at the Glenharold Mine. This disposal area is permitted as special use waste disposal permit SP-143.

In 1992 plans were made to reclaim the area of fly ash disposal in four stages within pond 4 and pond 5. These plans were made possible with the planned changes to the fly ash removal system, which modified the waste stream currently going to pond 1. Reclamation on these areas was performed from 1992-1996. Drawing 0CY-9522 has been included to show the four phases of reclamation at the disposal areas. The initial step in the reclamation process was to consolidate the waste as much as possible within the pond 4 and pond 5 areas by removing waste from ponds 1 and 2. The slopes of the reclaimed area were then designed and constructed to a minimum grade of 3% and a maximum grade of 15%. The majority of the area has a slope of 3-6 % promoting good runoff. The cover system consisted of a two foot clay cap with two foot of cover material for a total depth of four feet. All clay material required for the cap was generated on or adjacent to the site. Clay that met the specifications for use as a capping material was found within the east berm of the Special Use Disposal Area and also within the tippie hill at the Glenharold Mine. Upon completion of construction of the cover system the area was seeded and mulched following the criteria provided in reclamation plan contained in Section 9. With closure of pond 4 and the area designated as the Special Use Disposal Area all bottom ash is now sluiced to Pond 1 and in the future Pond 2. The Leland Olds Station has reclaimed approximately 115 acres within the SP-038 permit area.

Revised Final SSA Report for Leland Olds Station
 Townsley, Steve
 to:
 James Kohler, Stephen Hoffman, Jana Englander
 07/08/2011 04:49 PM
 Cc:
 "Brown, Stephen G"
[Show Details](#)

History: This message has been replied to.

All,

The revised final report for CLIN 025 Leland Olds Station from Round 7 has been posted on the GEI Sharefile site in the following location:

Coal Ash Impoundment Assessments/Round 7 Final SSA Reports/CLIN 025 Basin Electric Leland Olds Station Final SSA Report

We reviewed comments provided and made the appropriate revisions to the report as outlined below.

Basin Electric comment: "The CCW impoundments that are permitted for waste disposal are Former Ash Pond 1, Ash Pond 2, and Former Ash Ponds 4 and 5. Ash Pond 4 is reclaimed as is the majority of Ash Pond 5. A portion of Ash Pond 5 in the southeast corner of the permit area has been reserved for future disposal."

EPA comment: "Why are Ponds 4 and 5 not mentioned in report, were they officially closed?"

GEI Response: Ponds 4 and 5 were not included in the report because the ponds had been dewatered, reclaimed and seeded at the time of the inspection. Ponds 4 and 5 no longer receive sluiced ash and the ponds are capped.

Basin Electric comment: "Pond 3 is not proposed for ash disposal and should not be referred to as an ash pond. It holds decant water only, until it is recirculated back to the plant Circulating Water System. BEPC refers to this pond as just "Pond 3", and should be referred to as such throughout the report."

EPA comment: "If solely used as decant, is there storage in that unit of any significant amount? Did this unit need to be rated?"

GEI Response: At the time of the inspection in September, 2010, GEI understood the scope of work from the EPA to include decant ponds, and consistent with prior GEI Site Assessment Reports, the pond was included in the report. Ash Pond 3 or "Pond 3" receives decant water from Ash Pond 2 and likely holds small amounts of ash.

Basin Electric comment: "Correspondence from BEPC to GEI Consultants was not included as an attachment to this report, and BEPC believes it should be included"

EPA comment: Is this correspondence significant?

GEI Response: Basin Electric had very few documents on-site at the Site Assessment, and the majority of the design and construction documents used to prepare the report were transmitted after the site assessment by Basin Electric. Correspondence between GEI and Basin Electric was limited to transmittal of the available design

and construction documents for the ash ponds. These documents were used to prepare the report. GEI has not been including the documents used in the Site Assessment Reports in an appendix for any of the previously submitted Site Assessment Reports, and we do not feel we should change our standard procedure for the Lelands Olds Report.

Basin Electric comment: "Page 3, Section 2.1, Paragraph 1, The second to last sentence, "The CCW impoundments... are permitted to store bottom ash" should read "The CCW impoundments... are permitted to dispose of bottom ash."

EPA comment: "Please correct report."

GEI Response: The report has been changed.

Basin Electric comment: "Page 14, Section 6.0, Paragraph 2 Seismic analysis information from a recent project on the plant site is available and was provided to GEI Consultants with the information submittal letter dated October 1, 2010. "

EPA comment: "This does not correspond to what is written in the report. Please correct."

GEI Response: The report has been modified to the following: "We are not aware of any seismic analyses that have been performed on the dams at the LOS. Seismic information, as compiled during design and construction of the LOS Scrubbers, includes a maximum considered earthquake spectral response acceleration (0.2 second period) $S_s=0.063g$, maximum considered earthquake spectral response acceleration (1.0 second period) $S_1=0.022g$, and the plant site has been assigned to Site Class D. "

Please let me know if you have any issues with downloading the reports. We thank you for the opportunity to work on these projects.

Best regards,

Steve

Steve Townsley, PE

Vice President/Rocky Mountain Engineering Division Manager

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